



Integrated Pest Management Program

Department of Plant Science and Landscape Architecture
UConn Extension

Selected Insecticides and Miticides Labeled for Insects and Mites on Vegetable Bedding Plants/Transplants

If any information in this table is inconsistent with the label, then follow the label.

Insecticide	Target Pests	Labeled Crops	Comments
Acetamiprid (Tristar 8.5SL) 12 hr. REI Group 4A	Aphids, beetles, caterpillars, fungus gnat larvae, leafminers, leafhoppers, plant bugs, thrips, whiteflies	Bulb, Cole, cucurbit, fruiting, and leafy vegetable transplants.	Contact insecticide with high absorption and upward systemic mobility.
afidopyropen (Ventigra) 12 hr. REI Group 9D	Aphids, whiteflies, mealybugs	Cole, cucurbit, fruiting, and leafy vegetable transplants for the home consumer market.	Contact insecticide with ingestion and translaminar activity. For vegetable transplants sold for consumer market only.
azadirachtin (Aza-Direct; AzaGuard; Azatin O, Molt-X; Neemix 4.5) 4 hr. REI OMRI-certified products	Aphids, beetles, caterpillars, fungus gnat larvae, leafminers, thrips and other insects depending upon the label	Many vegetable transplants.	Contact insecticides. Insect growth regulator for immature stages of insects. Repeat applications needed.
azadirachtin (Ornazin 3% EC) 12 hr. REI	Aphids, beetles, caterpillars, fungus gnat larvae, leafhoppers, leafminers, shore fly larvae, thrips, whiteflies	Cole crops, cucurbit, eggplant, pepper, tomato, and other miscellaneous crops.	Contact insecticide. Insect growth regulator for immature stages of insects. Repeat applications needed.
azadirachtin & pyrethrins (Azera Pro) 12 hr. REI Group unknown and 3A OMRI-certified product	Aphids, beetles, caterpillars, fungus gnats, leafhoppers, leafminers, shore flies, thrips, whiteflies	Bulb, leafy, Brassica leafy, fruiting and cucurbit vegetable transplants.	Insect growth regulator and contact insecticide combined.
<i>Bacillus thuringiensis subsp. aizawai</i> (Agree WG) 4 hr. REI Group 11A OMRI-certified products	Caterpillars (see labels for specific types)	Agree: Greenhouse vegetables such as Cole crops, leafy and fruiting vegetables.	Stomach poison that must be ingested to be active. Most effective against small newly hatched larvae. Insects stop feeding and die 1 to 5 days later.

<i>Bacillus thuringiensis subsp. kurstaki</i> (BT Now) (Dipel Pro DF) 4 hr. REI Group 11A OMRI-certified products	Caterpillars	Many vegetables. Such as leafy, Cole, leafy, and fruiting vegetable transplants.	Stomach poison that must be ingested to be active. Most effective against small, newly hatched larvae. Insects stop feeding and die 1 to 5 days later. Thorough spray coverage needed.
<i>Bacillus thuringiensis subsp. israelensis</i> (Gnatrol WDG) 4 hr. REI Group 11A OMRI-certified product	Fungus gnat larvae	Leafy and Cole crops, cucumber, pepper, tomato, eggplant transplants.	Stomach poison that must be ingested to be active. Most effective against first instar larvae. Apply as a media drench.
<i>Beauveria bassiana</i> ANT-O3 (BioCeres WP) 4 hr. REI OMRI-certified product	Aphids, plant bugs, thrips, whiteflies, and others (see label)	Brassica leafy, bulb, cucurbit, fruiting, and leafy vegetables.	Contact insecticide. Active ingredient is an insect-killing fungus.
<i>Beauveria bassiana</i> GHA (BotaniGard ES and 22WP) 4 hr. REI	Aphids, thrips, whiteflies	Many vegetables. Do not use ES formulation on tomatoes.	Contact insecticides. Active ingredient is an insect-killing fungus.
<i>Beauveria bassiana</i> GHA (Mycotrol WPO, ESO) 4 hr. REI OMRI-certified products	Aphids, thrips, whiteflies	Many vegetables.	Contact insecticides. Active ingredient is an insect-killing fungus.
<i>Beauveria bassiana</i> PPRI5539 (Velifer) 12 hr. REI	Aphids, mites, thrips, and whiteflies	Vegetable transplants for the home consumer market.	Contact insecticide. Active ingredient is an insect killing fungus.
<i>Burkholderia ssp.</i> A396 (Venerate GC) 4 hr. REI OMRI-certified product	Aphid (suppression), caterpillars, mites, thrips, whiteflies	Bulb, Cole crops, cucurbits, leafy, and fruiting vegetable transplants.	Contact insecticide & stomach poison that disrupts insect exoskeleton interfering with molting.
Canola oil & pyrethrins (Pycana) 12 hr. REI OMRI-certified product	Aphids, beetles, caterpillars, fungus gnats, leafhoppers, leafminers, plant bugs, spider mites, thrips, whiteflies	Bulb, leafy, fruiting, cucurbit, Brassica leafy vegetable transplants.	Combination of a botanical oil and pyrethrins. See label for plant safety information.

chlorfenapyr (Pylon) 12 hr. REI Group 13	Broad mites, caterpillars including hornworms, spider mites, thrips	Tomato, tomatillo, ground cherry, peppers, eggplant.	Insecticide/miticide with contact and translaminar activity.
<i>Chromobacterium subtsugae</i> PRAA4-1 (Grandevo GC) 4 hr. REI OMRI-certified product	Aphids, beetles, caterpillars, leafhoppers, plant bugs, mites, thrips, whiteflies	Cole leafy, bulb, cucurbit, fruiting, and leafy vegetable transplants.	Contact biological fungicide for young immature stages. Stomach poison. Thorough coverage is needed. See label for plant safety information.
cyflumetofen (Sultan) 12 hr. REI Group 25	Twospotted spider mites	Cucumber, pepper, and tomato transplants for home consumer market (see supplemental labels).	Contact miticide. Compatible with many biological control agents.
cyromazine (Citation) 12 hr. REI Group 17	Dipterous leafminer (<i>Liomyza</i> sp.), fungus gnat and shore fly larvae	Vegetable transplants (brassica leafy, bulb, cucurbit, leafy vegetables, pepper, and tomato) grown for sale to consumers.	Insect growth regulator. Available in water-soluble packets. Applied to growing media for fungus gnat larvae.
dinotefuran (Safari 20 SG) 12 hr. REI Group 4A	Aphids, leafminers, thrips (suppression), whiteflies	Cucurbit, fruiting, cole and leafy vegetable transplants grown in enclosed structures.	Contact and systemic insecticide with translaminar activity for foliar application.
hexythiazox (Hexygon IQ) 12 hr. REI Group 10A	Two-spotted spider mites	Pepper, eggplant and tomato transplants.	Ovicide (egg killing activity). Most active on eggs and immature stages. Use only once per calendar year.
imidacloprid (Marathon) 12 hr. REI Group 4A	Aphids, leafhoppers, leafminers, fungus gnat larvae, thrips (suppression), whiteflies	Vegetable transplants intended for resale to consumers.	Contact, systemic, and translaminar insecticide. Do not rotate with other products in Group 4A.
insecticidal Soap (Kopa Insecticidal Soap) (M-Pede) 12 hr. REI OMRI-certified products	Kopa: Aphids, mites, plant bugs, whiteflies M-Pede: Aphids (suppression), broad mites, leafhoppers, leafminers,	Bulb, cole, cucurbit, fruiting, leafy and other vegetable transplants.	Contact insecticides. Short residual activity. See labels for plant safety information.

	plant bugs, spider mites, thrips, whiteflies		
iron phosphate (Sluggo) 0 hr. REI OMRI-certified product	Slugs, snails	Many vegetable transplants.	Bait. Best applied in the evening. Can be used around pets and wildlife.
Iron phosphate & spinosad (Bug- N- Sluggo) 4 hr. REI OMRI-certified product	Cutworms, slugs, snails	Bulb, leafy (except Brassicas), cole crops, cucurbit, and fruiting vegetables.	Bait.
<i>Isaria fumosoroseus</i> FE 9901 (ISARID) 12 hr. REI OMRI-certified product	Suppression of whiteflies, aphids, thrips, leafhoppers, plant bugs, mites, fungus gnats	Leafy, bulb, root, and tuber vegetables.	Contact microbial insecticide. See label for application and storage directions. Repeated applications needed. For foliar or drench applications.
<i>Isaria fumosoroseus</i> Apopka 97 (Ancora) 4 hr. REI OMRI-certified product	Aphids, leafminers (<i>Liriomyza spp.</i>), plant bugs, spider mites, thrips, whiteflies. Drench applications for thrips pupae, caterpillars.	Vegetable transplants.	Contact microbial insecticides. Apply when relative humidity is > 80%. See technical sheet & label for application directions.
<i>Metarhizum brunneum</i> (LALGUARD M52 OD) 4 hr. REI OMRI-certified product	Thrips, whiteflies, mites Aphids: celery, lettuce, spinach, peppers, tomatoes	Cucurbits, onions, celery, lettuce, spinach, peppers, tomatoes	Contact bioinsecticide for foliar spray and drench applications depending upon pest. Formerly known as <i>M. anisopliae</i> Met 52).
mineral oil (Organic JMS Stylet Oil) 4 hr. REI OMRI-certified product	Leafhopper, leafminers, mites, whiteflies	Cole crops, cucurbit, fruiting, and leafy vegetable transplants.	Contact insecticide/miticide. Foliar injury may occur if applied during humid conditions. See label for plant safety information.
mineral oil (SuffOil- X) 4 hr. REI OMRI-certified product	Aphids, leafhoppers, leafminers, mites, thrips, whiteflies	Many vegetable transplants.	Contact insecticide/miticide. Foliar injury may occur if applied during humid conditions. See label for plant safety information.

mineral oil (Ultra-Pure Oil) 4 hr. REI	Aphids, leafhoppers, leafminers, mites, thrips, whiteflies	Many vegetable transplants.	Contact insecticide/miticide. Foliar injury may occur if applied during humid conditions. See label for plant safety information.
neem oil (Triact 70) 4 hr. REI OMRI-certified product	Aphids, broad mites, leafhoppers, spider mites, thrips suppression, and whiteflies	Bulb, cole, cucurbit, fruiting, and leafy vegetable transplants.	Contact insecticide. See label for plant safety information.
Parasitic Nematodes (<i>Steinernema carpocapsae</i>) (Millenium) Exempt from REI	Shore fly larvae (suppression)	Greenhouse Crops	Apply to moist growing media (55-86° F) during cloudy, overcast conditions. Remove screens and filters from injectors, sprayers. Repeated applications needed.
Parasitic Nematodes (<i>Steinernema feltiae</i>) (Entonem, NemaShield, Nemasys, ScanMask) Exempt from REI	Fungus gnat larvae, thrips pupae in growing media	Greenhouse vegetables	Apply to moist growing media (50-86° F) during cloudy, overcast conditions. Remove screens and filters from injectors, sprayers. Repeated applications needed.
peppermint oil, clove oil, sodium lauryl sulfate (EpiShield), no REI	Mites, aphids thrips (suppression), whitefly (suppression)	Greenhouse food crops	Works by contact, suffocation, paralysis, and desiccation.
pymetrozine (Endeavor) 12 hr. REI Group 9B	Aphids, whiteflies (suppression)	Many vegetables for home consumer market.	Insecticide with systemic and translaminar activity. Apply only to listed vegetable plants grown for sale to consumers.
Pyrethrins (PyGanic EC 1.4 11) (PyGanic EC 5.0 11) (PyGanic Specialty) 12 hr. REI Group 3A OMRI-certified products	Aphids, caterpillars, fungus gnat adults, leafhoppers, thrips, whiteflies	Bulb, cole, cucurbit, fruiting, and leafy vegetable transplants.	Contact insecticides. Provides rapid knockdown of pests.
Pyrethrins and <i>Beauveria</i>	Aphids, beetles, caterpillars,	Bulb, leafy, brassica leafy,	Contact insecticides. Natural

<i>bassiana</i> Strain GHA (BotaniGard Maxx) 12 hr. REI Group 3A and unknown	fungus gnats, leafhoppers, plant bugs, spider mites, thrips, whiteflies	fruiting and cucurbit vegetable transplants.	pyrethrum combined with insect-killing fungus. Do not apply when beneficial insects are present.
Pyrethrins & PBO (Pyrethrum TR) 12 hr. REI Group 3A	Aphids, beetles, fungus gnat adults, leafhoppers, thrips, whiteflies	Bulb, leafy, brassica leafy, fruiting and cucurbit vegetable transplants.	Contact insecticide. See label for specific directions for placement and use for successful application.
pyrifluquinazon (Rycar) 12 hr. REI Group 9B	Whiteflies, aphids	Cucumber, lettuce, pepper, and tomato.	Contact insecticide with ingestion and translaminar activity. Thorough spray coverage is needed.
pyriproxyfen (Distance IGR) 12 hr. REI Group 7C	Foliar spray for aphid & thrips suppression, and whiteflies. Srench or drench for fungus gnat and shore fly larvae.	Indoor-grown fruiting vegetables. Do not apply to tomato varieties less than one inch in diameter.	Insect growth regulator. See label for plant safety information.
sulfur (Microthiol Disperss) 24 hr. REI OMRI-certified product Group M02	Broad mite (pepper), spider mite	Many vegetables.	Contact miticide/fungicide. Crops grown in the greenhouse may be more sensitive to sulfur injury. Do not use within two weeks of an oil treatment.
thiamethoxam (Flagship 25WG) 12 hr. REI Group 4A	Aphids, beetles, whiteflies	Foliar application to vegetable plants grown for resale to consumers.	Contact and systemic insecticide with translaminar activity for foliar or drench application for transplants only.

If any information in this table is inconsistent with the label, then follow the label.

OMRI-certified product: determined by the Organic Materials Review Institute (OMRI) to be suitable for use in certified organic production. Resistance Groups (number and letter) indicate products with a common mode of action based on the Insecticide Resistance Action Committee (IRAC) guidelines at <http://www.irac-online.org/>. For multiple applications to one crop, select products from different resistant groups.

By: Leanne Pundt, UConn Extension and Tina Smith, UMass Extension. 2007. **Latest revision 2024 by L. Pundt**

Disclaimer for Fact Sheets:

The information in this document is for educational purposes only. The recommendations contained are based on the best available knowledge at the time of publication. Any reference to commercial products, trade or brand names is for information only, and no endorsement or approval is intended. UConn Extension does not guarantee or warrant the standard of any product referenced or imply approval of the product to the exclusion of others, which also may be available. The University of Connecticut, UConn Extension, College of Agriculture, Health and Natural Resources is an equal opportunity program provider and employer.